DEFINITIONS

In the last class, we said that a trapezoid is a quadrilateral with exactly one pair of parallel sides.

New York State, for their NCLB exams, has decided that they will define a trapezoid as a quadrilateral with \textit{at least} one pair of parallel sides. (See below.) Mathematically, the definition of a trapezoid is not settled – there are a lot of people who use each definition.

\begin{quote}
\textbf{New York State Common Core Geometry Standards Clarifications}

In January 2011, the NYS Board of Regents adopted the NYS P-12 Common Core Learning Standards (CCLS), which include the Common Core State Standards and a small number of additional unique standards added by New York State. The CCLS were created through a collaborative effort on behalf of the National Governor’s Association Center for Best Practices and the Council of Chief State School Officers. The standards were developed by key stakeholders in the field, including teachers, school administrators, and content experts.

The main design principles in the NYS CCLS for Mathematics standards are focus, coherence, and rigor. These principles require that, at each grade level, students and teachers focus their time and energy on fewer topics, in order to form deeper understandings, gain greater skill and fluency, and more robustly apply what is learned.

In an effort to ensure that the standards can be interpreted by teachers and used effectively to inform classroom instruction, several standards of the Geometry curriculum have been identified as needing some clarification. These clarifications are outlined below.

\textbf{Note:} It is anticipated that more standard clarifications may be added to the list as feedback and requests for additional guidance are received.

\textbf{Clarifications}

\textbf{G.CO.3}

Trapezoid is defined as “A quadrilateral with at least one pair of parallel sides.”
\end{quote}

Q1. If one classroom teacher used the “at least one pair of parallel sides” definition, and another used the “exactly one pair of parallel sides” definition, how would you help a student understand the difference between these two definitions? Explain your reasoning.
DEFINITIONS

Q2. List one (or more) definitions that you know for function continuity. That is, “A function is continuous if…”

Q3. Draw some i) examples, and ii) non-examples, of continuous functions below.
DEFINITIONS

Q4. The definition of isosceles trapezoid that each of the teachers used was “A trapezoid is isosceles if the non-parallel sides are congruent.” What are some implications of keeping this definition? Does this definition still make sense if we use the new, inclusive, definition of trapezoid? Why or why not?

Q5. How would your analysis of each of the teacher’s statements change had they been using the “at least one pair of parallel sides” definition? Would you have Teacher A or B respond differently to the student? Explain.
**DEFINITIONS**

*Additional HW exercises*

**AE.1.** Zero is an even number. However, students often suggest that zero is neither even nor odd. Which of the following would still be true if all other integers (positive and negative) except zero retain their even or odd status. Justify your response for each statement.

- even + even = even
- odd + odd = even
- even + odd = odd
- even * even = even
- odd * odd = odd
- even * odd = even

**AE.2.** If a Calculus student thought about continuity as whether or not the function could be drawn without picking up a pencil, how might you push their thinking so that if they were asked on the AP Calculus exam whether \( f(x) = 1/x \) was continuous on its domain, s/he would give the correct answer?